Environmental Assessment Act passed

An amended version of the Environmental Assessment Act, was passed after third reading in the legislature July 14.

"The process of environmental assessment is a means of ensuring that ultimately all undertakings can be commenced and completed without undesirable effect of the environment," said Environment Minister William G. Newman.

"This act will accommodate this vital objective by placing the responsibility on the proponent of an undertaking to draw up and submit an environmental assessment to my Ministry at the earliest stages," he continued.

The act has been amended as the result of submissions and recommendations received from environmentally concerned citizens, organizations and industry after its first reading.

Mr. Newman said that the amended act will provide the people of Ontario with effective legislation without precedent in Canada.

Initially, all undertakings of the Ontario Government, its Agencies and Municipalities will come under this act. However, to give municipalities a further opportunity to examine its total impact and to present any questions which they may wish to discuss with Environment Ontario they will be exempted from the act at the outset. But they will be brought under its provisions at a later time. Undertakings by the private sector similarly will be brought under the act at a time dependent upon government administrative capability and experience.

The proponent of an undertaking which is subject to the act will prepare an environmental assessment and submit this to the Ministry of the Environment.

The public will be notified of the place where documents may be inspected.

Any proponent or individual who makes a written submission can require a public hearing on the undertaking. The Minister can, at his discretion, order such a hearing or deny the request. A hearing would not be called if the Minister considered the request to be frivolous, vexacious, or if, in his judgement, a hearing would be unnecessary or could cause undue delay in the process of the undertaking.

Should a hearing be held, it will be held under the provisions of the statutory powers procedure act with exceptions relating to procedure at a hearing to be established at the discretion of the assessment board.

Full notification of hearings will be provided to all interested parties.

One of the recommendations received after first reading called for the granting to the environmental assessment board the authority to make final decisions.

"This government cannot accept this suggestion," said Mr. Newman. "Our amended act, however, authorizes the board to make decisions but the Minister and Cabinet have the jurisdiction to vary, to reject, substitute their decision for that of the board or to require the board to reconsider its decision and to hold new hearings."

The Minister and Cabinet may exercise this authority within 28 days of the receipt of a decision of the board. If no action is taken the decision of the board is final. Questions of legal jurisdiction will, of course, be dealt with by the courts. The proponent cannot proceed with the undertaking until the decision becomes final.

Mr. Newman finished by saying that this act is designed to regulate and not to block or to hinder environmentally acceptable activity in Ontario.

ENVIRONMENT ONTARIO LEGACY

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Environmental Officer Roger Howe tests water at shoreline of Grand River near spill site.

Acid clean-up round-the-clock

Supervising the clean-up of an acid spill is a painstaking, time-consuming task. Take for example the Port Maitland incident.

When word came, June 26, that a storage tank at the International Mineral and Chemical Company in Port Maitland, Ontario had ruptured spilling 2,000 tons of sulphuric acid, Environment Ontario staff from the Stoney Creek office hurried to the spill site.

The scene was bad. One tank was twisted and flattened, others dented, vegetation blackened and bubbling pools of acid lay on the ground. The roadbed of an industrial siding was eaten away and some rail cars were canted.

Most of the acid was contained by dykes constructed on plant property. But an area of land about 50 feet by 50 feet outside the dikes was affected by acid and some acid passed from this area into the Grand River.

Supervised by Environment Ontario staff, clean-up measures by company staff began immediately on a round-the-clock basis. Environmental officer George Daoust didn't get a chance to sleep for 24 hours.

"There was some indication of a minor fish kill but there was no threat to drinking water," said Environment Ontario Minister William G. Newman. "To ensure this we monitored the water supply from Lake Erie and the Dunnville Water Treatment Plant and from nearby wells on a continuous basis."

Ministry sampling patrols also discovered some pockets of acid lying on the bottom of the Grand River under 20 feet of water. The largest was about three feet deep and 100 feet wide, containing acid in various stages of dilution.

As a safety precaution, Ontario Provincial Police officers cordoned off swimming areas in the immediate neighborhood of the chemical plant.

After careful testing for downstream effects, the Ministry decided on a controlled process of mixing and dilution to disperse and dissolve the acid pockets.

(Continued on page 2 – Spill.)

Upgrade water quality in Thames River Basin, recommends study

A study of the Thames River Basin, initiated in 1972 by the Ministries of the Environment and of Natural Resources was released in July by Environment Minister William G. Newman and Natural Resources Minister Leo Bernier. The report contains 29 recommendations designed to improve water quality in the basin, control flooding and to provide additional water-based recreational facilities in the long term.

"Flooding, which causes an estimated annual loss of $1.5 million plus serious erosion, is one of the primary problems in the Thames River Basin," Mr. Newman said.

"However, as we anticipated, the need to upgrade water quality in certain areas of the basin, plus the need for overall planning to meet future development needs is pointed out in the report," he said.

The Thames River Basin Study Report recommends:

- Formation of a joint committee of government agencies, conservation authorities and environmentally concerned groups to co-ordinate implementation of the report's recommendations.
- Immediate construction of the Glengowan Dam to improve the river's capability to accept sewage treatment plant effluent.
- Further study of the possibility of a flood control dam to be constructed at Thamesford and the assessment of such a project's impact on the environment.
- That special vigor be applied in rural oriented management and conservation practices throughout the basin, particularly in the headwater areas.

Municipalities in the headwater areas are also asked to pay special attention to sewage disposal practices to safeguard both local and

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It takes work to keep the cottage area environmentally safe.

Ask yourself this

By B. J. VANDEN HAZEL
Co-ordinator of Environmental Studies
Field Studies Centre, Woodstock

Cottagers are environmentalists.

They appreciate clean water and fresh air. To escape from crowded, unhealthy urban environments they travel 200 miles or more on a weekend. As more and more urbanites spend weekends at a cottage the land around some lakes has started to resemble city streets. What are the solutions to this problem? How can lake water be kept clean and pure? How can we use less gasoline and destroy less vegetation for automobile parking?

As most cottagers are fully aware of these problems, we might form cottage-environment associations and look into the following possibilities:

Energy and Space

Can private automobiles be left at home or in urban parking lots? Are we prepared to give up some of our mobility and set up a bus service from parking lots along the periphery of a city or town into a cottage area? Would this reduce the use of gasoline and increase the peace and quiet we are trying to find away from the city?

Water Quality

The quality of most lake waters improves somewhat in winter and deteriorates in summer with increasing human use. It is well known that human sewage and other nutrient sources enrich the lakewater and encourage rapid growth of algae.

As cottagers we can ask ourselves these questions:

Is the septic tank capable of handling the wastes produced? Have we been in contact with field workers of the Ministry of the Environment to find out how cottage owners can help in improving water quality? Are the motors of our boats adjusted to be pollution-free? Would the quality of the lake water improve if we did not use our powerboats for unnecessary cruising?

Cottage owners are environmentalists as they are fully aware of the necessity of an unspoilt environment. Are we prepared to give up some of our mobility and personal convenience to keep the environment healthy for our children and grand children?

Environmental officers Archie McLarty (left) and Al Thatchuk test river bottom for acid pockets.

Lake capacity studied

We shall fight on the beaches, we shall fight on the launching ramps, we shall fight on the lawns and in the cottages; we shall never surrender.

Yes, the cottagers are at war with the developers. Our lakes just can't handle any more cottages is the battlecry echoing throughout the recreational country in southern Ontario. Whether or not this is true, is a matter which needs investigation.

Unfortunately, a method of measuring the capacity of the land around a lake to support development and to predict when the environment will be aversely affected has not yet been developed. We cannot say at present that 369 or 371 cottages on a particular lake will create an environmental problem.

But the Ontario Ministries of Treasury, Economics and Intergovernmental Affairs, Housing, Natural Resources and the Environment are working on it.

Already the first two phases, concerned with research, of the lakeshore capacity study are complete. Phase three, the field-work, is now underway.

Four areas are recognized by scientists and by the public as becoming severely stressed when subjected to various degrees of development: the wildlife and habitat of a lake and its shore areas, water enrichment, sports fisheries and human health.

Each area is being studied as a distinct project and is designed to examine lake capacity in general. When they are finished, the project results will then be integrated to develop an overall lake capacity criteria.

Wildlife and habitat was chosen as one important aspect of the study because people who recreate or build on a lake can change vegetation structures which in turn alter animal activities. Whole species may be significantly reduced or enhanced by human activity.

The purpose of the research on lake enrichment or trophic status is to provide a means for planners to calculate the capacity of a lake for development based on relationships between nutrient inputs and water quality parameters.

Among other things, for example, the natural phosphorous load into a lake could be calculated by combining the phosphorous, which would be added in runoff water from land use and geological formations, to the direct input of phosphorous onto the lake's surface from precipitation and dry fallout.

The study's third component, sports fisheries, is also greatly affected by recreational activities. Fisheries can be altered by the increases in the harvest taken by anglers, changes in the oxygen condition of the water and through distribution in the spawning beds, nursery and feeding grounds.

Presently the Ministry of the Environment's Guidelines and Criteria for Water Quality Management in Ontario provieds the only method of evaluating the public health acceptability of a body of water for recreational use. The fourth area of the study will determine whether these guidelines can be used as a predictive tool or whether another approach should be found to indicate the effects of recreational activity on human health.

The land lake system in the Muskoka Lakes-Haliburton Highlands area of the province has been selected as a focus for the study because of the considerable amount of information available on water quality and fisheries.

It is estimated that the gathering, compiling and integrating of this material will take about six years. However, within three years time some data should be available.

The Lakeshore capacity study is a joint venture between the Ontario Ministries of Environment, Housing and Natural Resources under the Ministry of Treasury, Economics and Intergovernmental Affairs (TEIA).

TEIA requires the information for direct use in its policy, administrative and advisory functions connected to both the Planning Act and the Planning Development Act. Housing is also involved in the Planning Act and Natural Resources is anxious to improve its present means of handling Crown lands, fish, wildlife and timber. Environment will find the results useful with respect to water quality standards.

Spill

(Continued from page 1.)

International Mineral and Chemical installed an air lift pump and compressor on a barge in the river and dispersal at low speeds began. Tests continued until all traces of acid were gone.

The Ministry of Natural Resources and the Grand River Conservation Authority also worked with Environment Ontario and company staff to keep damage to fish and aquatic life at a minimum.

"The Ministry of the Environment will conduct its normal investigation into the causes and results of this spill and will work with the company on ways to prevent future accidental discharges from this plant," said Mr. Newman.

Cottagers prove they care enough

By BILL DODDS
Senior Information Officer

There's a saying in environmental circles: "If you are not part of the solution, you are part of the problem."

On the Muskoka Lakes, Blue Mountain, Sauble Beach, in the North Muskoka watershed and in a host of other cottage areas, cottagers are very much a part of the solution.

The enjoyment of summer cottages and recreation areas is linked very closely with the presence of a healthy natural environment—pleasant wooded areas, good drinking and swimming water, good fishing and clean, fresh air. When we get away from it all, we don't want to discover that we've brought it all with us.

Let's face it. We care more about the environment in areas where we play than we do about the areas where we work. Normal urban conditions would be intolerable in a vacation environment.

At the same time, more and more cottagers are realizing that they get the best vacation environment by assuming some personal responsibility for its protection and enhancement.

These are the people who take advantage of Environment Ontario's self-help program on recreational lakes—doing their own water quality testing with Secchi discs and sampling bottled for analysis and interpretation by the Ministry.

These are the people who get involved in area planning, to help guide development in their vacation community to minimize disruption to their holiday environment.

These are the people who organize work crews to clean up their beaches and waters, who work on guidelines for the operation of power boats and snowmobiles and who investigate and install proper sewage and wastewater treatment facilities in their cottage communities.

In short, these are the people who care enough to get involved—to become part of the solution.

CONFERENCES

One of the conference highlights was Dr. William Nicholson's talk on asbestos.

Engineer Betty Hill speaks up during question and answer period.

Briefly: paper scheme and land sites

In 10 Soviet cities a scheme to provide more paper for books and newsprint has caught on like wildfire.

Book-lovers are given a coupon for every 44 pounds of "makulatura" – anything from newspapers to chocolate bar wrappers – that they turn in at special collection points.

The coupon helps to buy any book sold under the scheme.

The first offered on these terms was Queen Margot by Alexandre Dumas. The complete printing of 200,000 copies sold as fast as collection points could handle the rubbish pouring in.

• • •

The Ministry of Natural Resources is offering sites for remote cottaging in hinterland areas north of the French and Mattawa Rivers to Ontario residents, who have lived in the province for the preceding twelve months.

There are two types of lots – one fronts a lake and the other is inland but is near a source of water. Both kinds will be available on a 10 year lease with a minimum annual rental of $100 for a waterfront lot and $50 for an off-water lot. The lease agreement calls for a building of not more than 400 square feet and one story in height to be erected within the first two years.

All sites, each about one acre in size, will be truly wilderness with access only by water or air. Only earth pit type toilets will be allowed and no pressure systems will be permitted. Water will have to come from a hand-pumped well or toted by pail from a nearby stream or lake.

The Ministry expects that about 200 sites will be required initially but is prepared to provide as many more as possible to satisfy further interest in the program.

Industrial Waste:

Involvement stressed

In both theme and content, humanity was the keynote at the 22nd annual Ontario Industrial Waste Conference in Toronto.

The increasing importance of the human element in the latest technical innovations in the waste management planning field was reflected in many of the briefs from industry, government and science.

Environmental guidelines and public acceptance of public and private projects, said consulting sociologist Desmond Connor of Oakville, are rapidly becoming as important as technical and economic considerations.

"The purely engineering study will give way to a multi-disciplinary investigation by a team of engineers, ecologists and social scientists," said Mr. Connor. Public involvement in project planning is useful in providing data on community values and opportunities for public education to reduce waste and to respond favorably to reparation for resource recovery.

The Solandt Commission conducted public hearings into the location of hydro lines. Its head, Dr. O. M. Solandt, told the conference that public participation in this area should not be confined to those directly affected. Citizens from the entire study area, environmentalists, agriculturalists, and others should have input, he said.

While the public has become increasingly involved in environmental issues, there have been tremendous strides in the development of the analytical tools for measuring industrial effluents, said Environment Ontario scientist Jim Bishop. These effluents are increasingly complex, he said, but the environmental scientist, aided by automated and computerized machinery can do more in less time than in the past.

This kind of modern, ultra-sensitive measurement comes into play in the monitoring of trace contaminants such as mercury, lead, and asbestos.

The hazards of overexposure to asbestos in industry– asbestosis, lung cancer, and so on – are well documented, said Dr. William J. Nicholson from New York's Mount Sinai School of Medicine. More difficult to control, he said, is the contamination of the ambient air of buildings in which air supply ducts have been lined with sprayed asbestos material. Another is the problem of asbestos dissemination during the demolition of such buildings.

The spray application of asbestos for fireproofing of the steelwork of high-rise office buildings has been voluntarily avoided in Canada and banned in the U.S., he said.

Technical discussion centred around innovations in waste management of pulp and paper and metal plant operations among others. But, the four-day affair wasn't confined to study and discussion.

A ladies' program for the wives of delegates included a tour of downtown Toronto and a demonstration of Japanese floral arranging.

Verbally, the conference ended on still lighter winds as Paul Henderson, member of the International Yacht Racing Union, provided an entertaining after-dinner speech at the closing banquet.

This year's conference had the highest recorded attendance, 485, from across Canada and the U.S.

Tentative dates for next year's conference have been set for around the middle of June.

Consulting sociologist Desmond Connor said that public involvement is useful in providing data on community values.

North Muskoka Group now involved in own water quality program

By DENNIS NAGATA
Summer Editorial Assistant

No man is an island. Nor are some lakes. For them, collective action is the best policy.

The North Muskoka Watershed Group represents cottage associations on a chain of 10 lakes that reaches out in a 15-mile arc from Huntsville. With membership from each individual lake cottage association, the group reflects a new awareness in the approach to environmental protection.

"Our group has one goal," said co-ordinator Tom den Bak, "to improve the water quality in our lakes.

"Each lake may exhibit unique features and problems, but the water is something we all share. In order to observe its quality, a co-ordinated effort is the best approach."

That effort this summer will see weekly water sampling by cottagers on each of the 10 lakes, part of the Ministry of the Environment's self-help water quality program.

Water clarity is assessed using a simple device called the Secchi disc. The depth at which the disc disappears from sight is used to calculate the extent of light penetration in a lake and hence the concentration of algae in the water. Chlorophyll samples from the euphotic zone (usually twice the Secchi disc depth) indicate the enrichment status or eutrophication of a lake. An overabundance of chlorophyll indicates an imbalance in the natural plant and animal life.

Ideally, testing is done at a number of locations on a lake, from the end of a boat dock or from a boat.

The chlorophyll sample analysis is conducted at the Toronto laboratories of the Ministry of the Environment. The Ministry summarizes the Secchi disc- chlorophyll data and issues reports to the participants and to the public.

People

Environment's many concerns varied in Central Region

Diverse, complex and varied, these are good words to describe Environment Ontario's Central Region. The area not only contains 50 per cent of the province's population but also includes major industrial, agricultural and recreational areas.

Paul Cockburn as regional director is responsible for the total environmental protection of this area which takes in the Counties of Peterborough, Northumberland, Victoria, Simcoe, the district municipality of Muskoka, the provisional county of Haliburton, the regional municipalities of York, Halton, Peel and Durham and the municipality of Metropolitan Toronto.

The regional office in Don Mills is backed up by the district offices in Peterborough, Barrie and Gravenhurst and sub-offices in Huntsville and Oakville.

The Central regional office like all of the Ministry's regional offices operates independently from the head office on St. Clair Avenue West in Toronto, where the service categories are based. "As far as office operations go, our location makes no more difference than if we were in Thunder Bay. Obviously people still call the head office with complaints but we are gradually persuading them to call us directly in the field," said Mr. Cockburn.

Mr. Cockburn has been with the Ministry of the Environment and the former Ontario Water Resources Commission since 1960. In 1965 he was appointed director of the projects division, which later became the project development branch. "Because of the expertise of my staff, my job is more administrative now," he said. However, Mr. Cockburn does have a bachelor's degree in civil engineering and a master's in sanitary engineering.

"One of the most interesting things about the Central Region," said Mr. Cockburn, "is that our environmental concerns are not related to one particular type. The experience of all of my staff whether it be in the industrial field, municipal and private, utilities or technical support is equally in demand."

Most of the province's regional governments – Halton, Peel, York, Muskoka, Metro Toronto and Durham– are in the central area. Every month Central Region staff meet with representatives of these governments to discuss environmental matters. Mr. Cockburn is the co-chairman of the committee.

In the solid waste area, the Central Region has problems as serious as anywhere else. "Solid waste to-day has reached the problem state which water supply and sewage were in when I first started work with the Commission 15 years ago," he explained.

"We also have every type of industrial problem, the foremost being lead, asbestos and odors. The question of smoke from such operations as incinerators is gradually disappearing but we are now faced with the issue of new contaminants. We have to look continuously for new and potential problems in the air, isolate them and provide the right remedial measures."

Paul Cockburn is the director of Environment Ontario's Central Region.

Recreational lakes also rate high on Mr. Cockburn's list of priorities. He and his family enjoy the use of their cottage in Muskoka and are concerned with the problems faced by cottagers.

And you think you've got problems

By DENNIS NAGATA
Summer Editorial Assistant

While most of us are battling weeds on our property this summer Rhoda Ross will be doing the same–she has about six acres of them, all underwater.

Mrs. Ross and her husband have operated a marina just east of Cornwall on Lake St. Francis for the past 20 years. Lake St. Francis stretches 30 miles from Valleyfield, P.Q. to Cornwall on the St. Lawrence River.

During the late summer months Mrs. Ross spends an hour a day cutting the weeds that are a nuisance to her customers, fouling propellers and rendering some areas inaccessible to fishermen and recreational boaters.

Using a specially designed motor-driven cutter, she can clear an eight foot swath to a maximum depth of four feet. The rig is attached to the bow of a 12-foot boat in which Mrs. Ross putts around her property at much the same speed as a motor-driven lawn mower. The prevailing winds, she said, carry the cut weeds ashore where they can be gathered and disposed of easily.

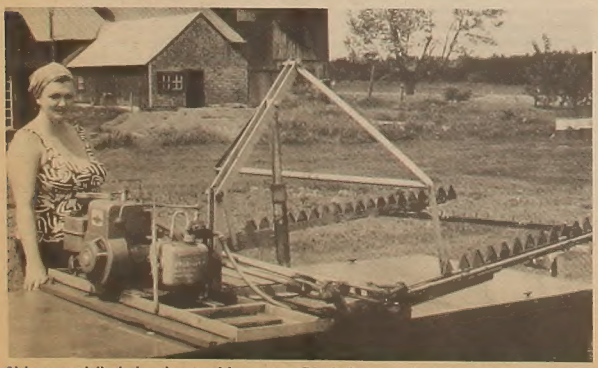
She bought the apparatus last year from a mail-order firm in Wisconsin after seeing an advertisement in a sporting magazine. Attached to a small boat and motor, it represents about a $1000 investment.

Mrs. Ross noted that though her solution to her weed problem appears simple enough, none of her fellow Lake St. Francis marina owners have yet followed suit.

However some of the marina owners and local cottagers met with various levels of government a few months back to discuss the weed problem. At the meeting, Glen Owen, biologist from the Ministry of the Environment's Kingston regional office, explained the probable cause of the weed problem and possible courses of remedial action.

He said that the excessive weed growth is caused by increased sedimentation from the reduced current velocity due to regular dredging operations. The dredging is necessary to accommodate ship traffic along the St. Lawrence Seaway of which Lake St. Francis is a connecting link. Weed beds, once established, act as filters to trap eroded soil particles, accelerating the creation of new shallow areas which they rapidly infest.

Seaway construction, he said, has caused changes in the lake which are irreversible, leading to decreased recreational use and devalued shoreline property. However, he said weed cutting, possibly a weed harvesting program on Lake St. Francis–the cut weeds are used as livestock feed or soil additives–would lessen these undesirable effects without significant ecological risk.



Using a specially designed motor-driven cutter, Rhoda Ross spends an hour each day cutting weeds in front of her husband's marina.

Student turned-on to sampling water quality in Norwood

As far as environmental studies are concerned this young man is just getting his feet wet.

Fourteen year old David Berry has an unusual hobby by most standards–water sampling. You can find him three or four hours a week doing phosphate, oxygen, carbon dioxide, nitrate tests and others in and around his hometown, of Norwood (about 15 miles east of Peterborough).

"I'm concerned with everything that affects the environment," he said. "But I chose water sampling because you don't need a lot of equipment and it's the easiest to do."

David has cleaned out every bit of water sampling equipment from his environmental science teacher, Norm Freeman. He's only one of 175 students Norm teaches, but in terms of enthusiasm he's in a class by himself.

"He's real turned-on," said Mr. Freeman. "If everyone of my students were like him, my job would be a lot easier."

(Continued on page 5.)

In memoriam

On Tuesday, July 1, 1975, Allan George Tracey, 28, was killed while leading a caving expedition near Marlington, West Virginia. Mr. Tracey was a geomorphologist heading up the Environment Design Section of the Environmental Protection Service of Environment Canada.

People

Best laboratory in world not far from classroom

By DENNIS NAGATA
Summer Editorial Assistant

If the devil finds work for idle hands, then he'll never give this man a job. He's got plenty of them already.

Norm Freeman, 50, is a teacher, a journalist, a toilet salesman, a sporting-goods store proprietor and an active member in his local cottage association. Obviously, a man so busy isn't the type to waste his time beating around the bush. The no-nonsense approach shows in his approach to teaching environmental studies to grades nine to 11 in Norwood District High School, 15 miles east of Peterborough.

"I've designed my course to reach outward into the community," said Mr. Freeman. "The only way to teach this subject is to use the real world as a laboratory. The entire direction of high school curricula is toward developing test-tube courses—courses that have no relevance to the world outside."

Norm packs 20 students at a time into his brand new red van and visits both natural areas and local businesses. His itinerary includes a slaughterhouse, a tannery, and a newly-built sewage treatment plant on the River Ouse.

If the students don't approve of the conditions their teacher shows them, they are encouraged to act to change them. Recently his students organized a protest rally to save the elm trees along Norwood's main thoroughfare, Peterborough Street, threatened by the proposed widening of Highway 7.

"Country kids are just beginning to appreciate what they've got," said Mr. Freeman, adding, "they've seen what's happened around cities and they don't want it to happen here."

Mr. Freeman pointed out that most of his students come from homes where agriculture is the chief livelihood. Because many of them will go on to agriculture-related fields, they show an interest in the local ecology. Last year more than a third of Norwood's college-bound graduates enrolled at the University of Guelph to pursue these careers as did Mr. Freeman himself more than 25 years ago.

A native of Battersea, about 15 miles north of Kingston, Mr. Freeman owns and operates a sporting-goods store with the unusual name "The Barber Shoppe (it's considered a meeting place.)

Mr. Freeman has sold some of the $800 units to his fellow cottagers in the Battersea-Loughborough Association. For the 500 members who live along the 21 mile-long lake 15 miles north of Kingston, he writes the association quarterly newsletter, "The Red Bull Roars". For "just a measly $3 a year" they get "local news, happenings and death notices" plus special recipes printed on pink, red, and orange paper—a colorful package from a colorful man.

Teacher Norm Freeman conducts class outdoors.

Student

(Continued from page 4.)

David has been turned-on ever since an older brother introduced him to the subject more than four years ago. *Long past the stage of novelty* interest, he approaches the procedure with characteristic sobriety. His scrupulous test records over the past year document the declining water quality level in the River Ouse which criss-crosses the village of Norwood.

Despite his extra-curricular pastime, David still manages to stay at the head of Mr. Freeman's environmental science class. Where does this young man go from here?

"I want to be an environmental scientist," he said.

David Berry shows equipment he uses to test water quality of Ouse River.

Ed Sarasin (left) shows his grandchildren the Citation of Merit he received for his environmental work. Environment Minister William Newman looks on.

Pefferlaw man receives 3rd award

This has been the season for clean-up campaigns and one of the most outstanding workers in the field has been Edward Sarasin, 64, of Pefferlaw.

Due to crippling arthritis, Mr. Sarasin was ordered by his doctor to stop work in 1972. He immediately got involved in community youth programs and in 1974 and 1975 organized clean-up campaigns along the Lake Simcoe shoreline in the Townships of Georgina and Brock.

Aided by 40 volunteers, and his children and grandchildren, Mr. Sarasin's 1975 campaign covered 50 miles of shoreline in May of this year. Three tons of litter was collected by the group.

His efforts to beautify Ontario came to the attention of the Ministry of the Environment and on June 9, Mr. Sarasin was presented with the province's environmental Citation of Merit.

During a brief presentation ceremony at Queen's Park, Environment Minister Newman said that Mr. Sarasin's personal effort was instrumental in assuring the success of the two campaigns.

"The fact that those who volunteered to help ranged in age from six to Mr. Sarasin age 64, speaks well of the need for all Ontarions of all ages to get involved in such community projects," the Minister said. "He set an example that all should follow."

Mr. Sarasin is the third recipient of Environment Ontario's Award of Merit since its creation last year. The first two awards were made to an Oakville student who spotted and reported an oil spill and to a Welland woman who also organized a spring clean-up campaign.

The Citation to Mr. Sarasin read:

"Edward Sarasin is to be congratulated for the effort he expended on behalf of his community, neighbors and the environment. Although ordered by his doctor to cease all employment in 1972, Mr. Sarasin was instrumental in the organizing of Spring Clean-Up Campaigns in Georgina and Brock Townships along the shoreline of Lake Simcoe in 1974 and 1975. During a five-day clean-up campaign in May, 1975, Mr. Sarasin and 40 volunteers collected three tons of litter and garbage from 50 miles of Lake Simcoe shoreline. Mr. Sarasin, 64, who suffers from arthritis of the spine, emphysema and chronic bronchitis, has set a standard of environmental concern which stands as an example for all Ontario residents."

Self-help program:

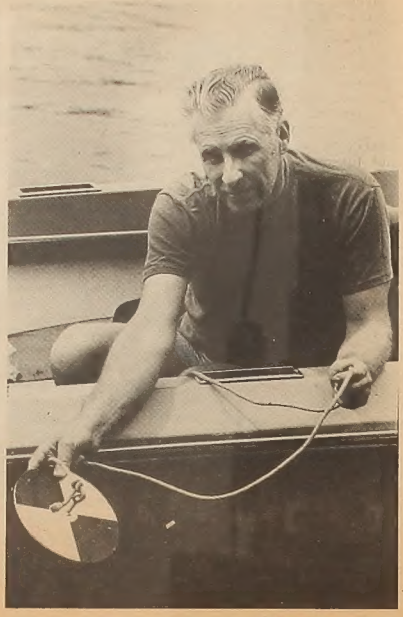
Some cottagers go all the way

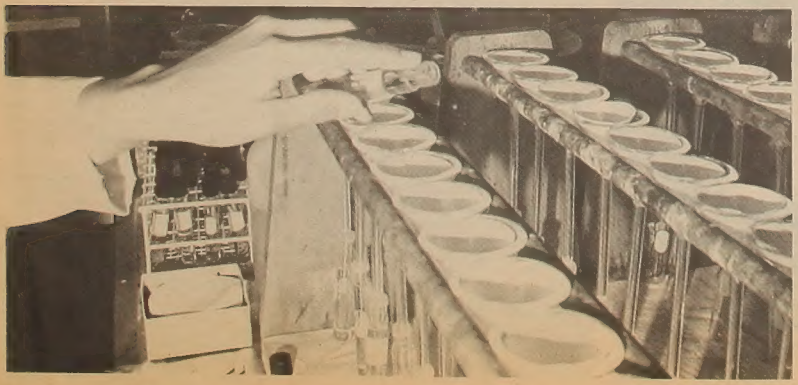
In the field

Mr. Vern Spruit is the pollution chairman of the cottage association on Lake Canning near Minden. Participating in the Ministry of the Environment's "self-help" program, he takes a chlorophyll *a* sample (right) and a Secchi disc reading (far right) every week during the summer months.

The Secchi disc is a simple device which measures the transparency of water. This disc which is divided into black and white alternating quadrants is lowered into the water on a graduated line until the quadrants cannot be distinguished. The depth at which the disc just disappears is termed the Secchi disc depth. This depth can be utilized to calculate a depth which approximates the extent of light penetration in a lake and hence the depth to which algae grow (called the euphotic zone).

Subsequently, a composite sample of water from the entire euphotic zone can be collected for chlorophyll *a* analysis. The amount of chlorophyll provides a rough indication of the quantity of algae present in a lake since it is regulated by all of the combined physical, chemical and biological factors which affect algal production.





From the field to the lab

The composite sample is collected by lowering a 32-ounce bottle provided with a restricted inlet to the approximate location of the 1 per cent incident light level (lower limit of the euphotic zone). By prior trial and error, the bottle is lowered and raised at such a rate that it should fill completely just as it ascends to the surface of the water.

The chlorophyll sample is usually taken late in the weekend to minimize the travelling time to the Ministry of the Environment's laboratories and research centre in Toronto where it arrives express-collect, or via a ministry vehicle (far left). The sample is accompanied by a requisition for analysis filled-out by the cottage sampler.

The bottle then moves to the sample reception area (above middle) where it is identified and labelled and routed to the appropriate lab section.

Filtration (above right) produces a filter paper with chlorophyll *a* residue which is dissolved in a special solution (bottom) that is analyzed by a machine called an Ultraviolet Spectrophotometer (see page 11). The print-out it produces is then read automatically and converted to written material by a newly-installed computer.

This information is used to compile reports which the Ministry issues to interested parties. Information about the self-help evaluation program is available at all Ministry offices.

(Continued on page 11 — Self-help.)

ENVIRONMENT ONTARIO

Research and lab facilities expand

"...the largest and best-equipped analytical laboratories in Canada"

"I don't have trouble competing with politicians but I have trouble competing with those fellows upstairs," said Environment Ontario Minister William G. Newman at the official opening ceremony of the Ministry's expanded environmental research and laboratory facilities, June 26.

Mr. Newman's remark, greeted with laughter, was in reference to the airplanes which for several minutes flew low over the laboratories at Highway 401 and Islington Avenue in Etobicoke interrupting the speeches.

"The expansion now gives the Ministry of the Environment one of the largest and best equipped environmental analytical laboratories in Canada," Mr. Newman said.

"The additional facilities will also enable the laboratory services branch to better refine our analytical methods to develop procedures for measuring and assessing environmental pollutants."

The laboratories provide analytical services and general scientific expertise, and also contribute to the planning, implementation and data interpretation necessary to ensure the success of various ministry scientific programs.

More than 400 municipal, provincial and federal officials, scientists and staff attended the opening, toured the facilities and watched Mr. Newman and James Snow, the Minister of Government Services participate in two short scientific experiments as well as unveil a plaque.

The first experiment, using a series of chemical solutions in beakers, demonstrated the amount of metal in a contaminated sample of water. The second, using an anodic stripping voltameter, analyzed electronically a sample of Toronto drinking water.

James Auld, the former Minister of the Environment and now Minister of Colleges and Universities also praised the facilities and Etobicoke Mayor Dennis Flynn welcomed the guests to the area.

The deputy minister of the Environment, Everett Biggs acted as master of ceremonies.

In addition to other laboratory and research facilities, the new $12.5 million centre contains two electron microscopes. These will improve the Ministry's monitoring and assessment of the levels of ultra-trace contaminants in water and, as a result, lead to more effective pollution control programs.

The new laboratories and research complex consists of three new buildings—a four-storey laboratory wing, a two-storey building used for testing and a central heating and cooling plant.

Ontario Environment Minister William G. Newman addresses group of 400 at opening.

Environmental protection: a behind-the-scenes look

Temperatures climbed and so did punch bowl popularity.

It was a hot muggy day in June when Environment Ontario's backstage crew of scientists, biologists and researchers finally took their places at stage front.

The setting was the official opening ceremony of the Ministry's new and expanded research and laboratory facilities. The audience of government officials, news media, Ministry staff and other interested parties, were given a private showing behind the scenes in environmental protection and enhancement.

The cast itself was divided into four areas: development and research, limnology and toxicity, laboratory services and administrative services.

RESEARCH GROUP

The development and research group is part of the Ministry's pollution control branch. With its three specialized sections, applied sciences, wastewater treatment and water technology, it provides a framework for applying research to water supply and wastewater treatment.

Applied sciences is an engineering group which investigates and reports on innovative and unusual concepts and processes in water supply and treatment, sewerage and sewage treatment and water, air and soil resource use.

Current projects include the study of municipal water treatment by reverse osmosis, land disposal of sewage, ion exchange capability of soil and water main insulation.

Wastewater treatment staff work to maintain and improve wastewater treatment technology and provide technical advisory service and in some cases research facilities to municipalities, industries, government agencies and even equipment manufacturers and suppliers.

An analytical laboratory and an experimental sewage treatment plant are used, not only for studying and interpreting projects, but also for training and demonstration facilities.

Water technology staff develop and refine new and improved water treatment and distribution technology and improve the use of existing methods and facilities through research programs. The section maintains liaison with university and other research agencies to develop and exchange water process technology information and provides advice and assistance to Ministry and other government activities, to municipalities, to industries and to the public.

The section also conducts specialized studies on various biological, bacteriological and chemical problems affected in water treatment.

LIMNOLOGY

Limnology is the study of the physical, chemical, and biological conditions in fresh water, and toxin is poison.

The limnology and toxicity section of the water resources branch conducts a wide variety of studies into the relationships between aquatic organisms and the chemical elements of Ontario's lakes and rivers.

The section is concerned with three major areas: the development of lake and river management and reclamation techniques and guidelines, identifying and counting the plankton in surface waters (often the cause of taste and odor problems in water supplies) and measuring the toxicity of industrial effluents and chemicals in surface waters.

Current projects include aquatic weed harvesting, the destratification of lakes—pumping air into the deepest part to bring the lakes to a new balance of good water quality—and the study of pH adjustment. Lakes with a low pH are treated with a mixture of lime and car-

(Cont. on p. 10 – Scenes.)

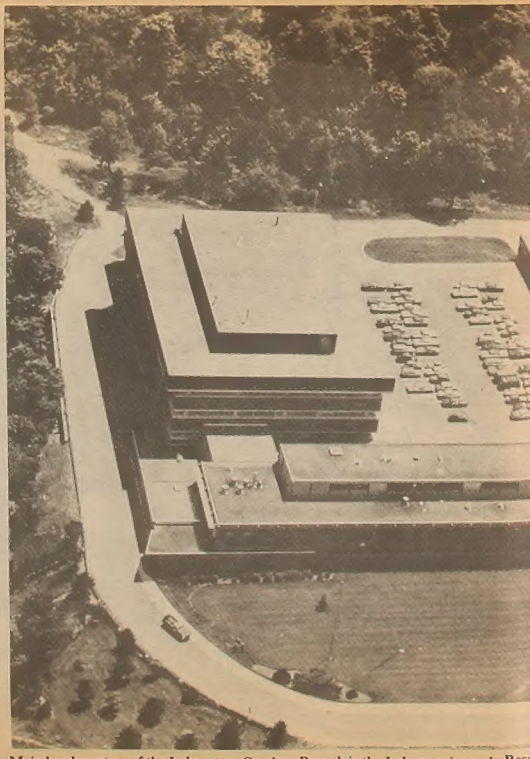
Laboratories and Research Centre

A million lab tests a year

Provincial and federal officials, scientists and staff attended the opening.

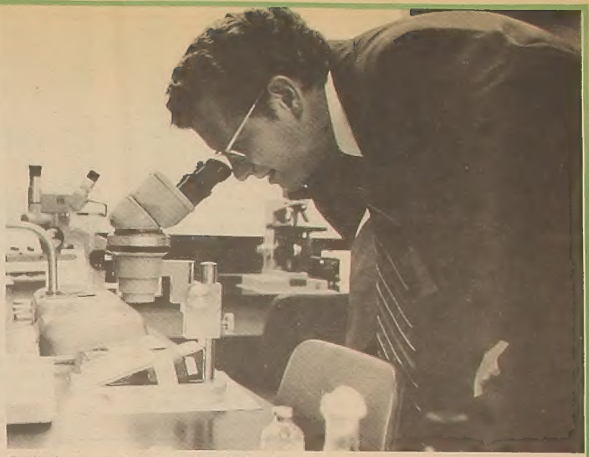
L to R: James Snow, Minister of Government Services; senior chemist James Bishop, James Auld, Minister of Colleges and Universities, conduct an experiment to analyze drinking water. At lectern, Environment Ontario Minister, William Newman.

A shady rest, a glass of wine, and a lab book...



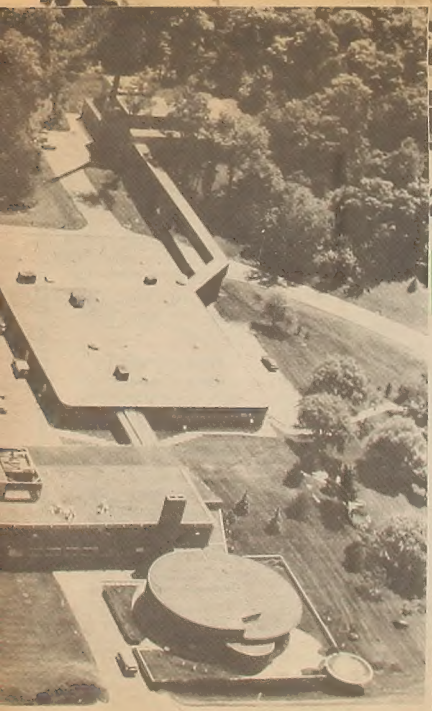
Main headquarters of the Laboratory Services Branch is the Laboratories and Rese

Of all in attendance, the ice sculpture reluctantly left first.



On display, some of the lab's analytical tools.

"But he was standing here just before the experiment began..."



ch Centre at Islington Ave. and Highway 401 in Toronto.

Shack is not a home

Environment Ontario's new Laboratories and Research Centre is "a far cry from that old tin shack which housed the entire research facilities of the OWRC on Richmond St. in 1957," deputy minister Everett Biggs said as he welcomed guests to the centre's opening.

But the new centre is not all new.

The complex is an expansion of the Ontario Water Resources Commission (OWRC) laboratories built in 1959 by Ministry of Government Services. Started in September 1971, the expanded facilities were largely occupied during March and April, 1974. The area housing the electron microscopes was finished in June 1975.

The $12.5 million project consists of three buildings which add more than 200,000 gross square feet of floor space to the 65,000 previously in use on the site.

A new four-story laboratory wing is directly connected on two floors to the original lab and the outside of the poured concrete building is veneered with brick to harmonize with the older building. The three upper floors of this building contain laboratories and support offices; the first floor contains the main entrance, stores, glassware washing facilities, shipping and receiving, and offices.

The second new building a two-story test wing, has one section which extends through both floors to accommodate high equipment. It contains test facilities with support laboratories, workshops, and a bulk storage area.

The lower floor of the structure is poured concrete and it has a steel frame upper floor, with face brick exterior.

The third is the central heating and cooling plant which serves not only the original OWRC laboratory building, but the new additions and the adjacent Ministry of Health laboratory. It is a poured concrete structure finished on the outside with an exposed aggregate coating.

Associate architects for the project were Fisher, Tedman and Glaister of Toronto, and the construction management contractors were Duncan Mill Engineering & Karamco Ltd. also of Toronto.

Scenes

(Continued from page 7.)

bonates to reduce this acid condition so that the lakes can support the normal biological food chain.

Routine testing of industrial effluents to determine abatement measures and guidelines is a regular program.

The effects of reducing phosphorus inputs to lakes is under study at several locations, most notably in Gravenhurst Bay. The reduced inputs have resulted in lower algae numbers and improved water clarity.

Other studies investigate the toxicity of pulp and paper mill effluents: The effluents are being studied primarily to determine the effectiveness of abatement procedures within the plants.

LABORATORY SERVICES

The laboratory services branch performs more than one million tests a year to assess drinking and surface water quality, and to detect and measure a wide range of pollutants.

The staff contributes to Ministry research and also provides technical assistance to the Ministry air and water assessment programs. More than 200 scientific and support personnel are employed at the laboratory.

Certain substances in the environment such as lead and mercury are of current concern to the public. Intensive testing of these and many other substances which may present a danger to human health is being done on a continual basis at the laboratory.

The laboratory services branch is divided into five sections: air quality, water quality, inorganic trace contaminants, organic trace contaminants and microbiology, all of which, with the exception of the air quality section, are in the Resources Road complex. The air quality laboratory is located at 880 Bay Street, Toronto.

Besides providing information to back-up any Ministry programs, scientists from this branch are also expert witnesses for the Ministry in pollution-related court cases.

ADMINISTRATIVE

Administrative services acts in a back-up capacity, providing necessary support services.

Besides running the library, it functions in two main areas—laboratory stores and mechanical services.

It maintains inventories of chemicals and glassware, washes, sterilizes and packages glassware and distributes the sample containers sent to the Ministry for testing or analysis to the right departments.

The carpentry and machine shops fabricate and manufacture much of the equipment needed for the Ministry programs and experiments. They also repair and modify existing instruments or equipment.

The motor vehicle shop provides repairs and maintenance to Ministry cars, trucks and mobile laboratories.

OTHER FACILITIES

In addition to the central laboratory complex the Ministry maintains lab facilities in the Queen's Park area of Toronto as well as regional labs in London, Kingston, Sudbury and Thunder Bay. Several mobile vehicles are also used to carry out on-site measurements for various pollutants. On water, similar work is done with a specially designed marine laboratory aboard the Guardian No. 1.

The Ministry of the Environment at a glance

Collecting a water sample at a sewage treatment plant.

Lab work: a mix of classical chemistry and new technology.

Since 1956 when the Ontario Water Resources Commission was established, the Ontario government has been responsible for quality and supply of water in the province.

Then in 1970 with the growing awareness of other types of pollution besides water, the Department of the Environment was established assuming responsibility for air and, at a later time, waste management. Pesticides control, formerly under jurisdiction of the Department of Health, was also added.

These two major agencies dealing with the protection of the Environment were united to form the Ministry of the Environment in April, 1972, bringing the protection of air, water and land together in one organization.

With the control of air, water and land pollution all under one roof, the foundation of this environmental house is its research and analysis groups.

The development of scientific and technical expertise and of research and analytical capacity has gone hand in hand with the growth of one of the world's best and most comprehensive systems of environmental protection. These are some of the resulting environmental achievements:

WATER

Since 1956 a total of $2.5 billion has been invested in water and sewage treatment facilities including more than $150 million in provincial subsidies since 1969.

Ontario now has 438 water pollution control plants operated or regulated by the Ministry, in 307 municipalities to serve 5.4 million people.

GREAT LAKES

As of December 31, 1973, permanent phosphorus removal facilities have been installed in 75 per cent of the 200 affected sewage treatment plants in southern Ontario with similar facilities in the remaining plants now nearing completion.

This means that Ontario has met its deadline under the Canada-Ontario agreement for clean-up of the lower Great Lakes.

INDUSTRIAL WATER

More than $250 million has been invested by Ontario industries to control water pollution. Intensive sampling and testing are carried out regularly by the Ministry to ensure compliance with Ministry schedules and programs.

COTTAGE SURVEY

Since 1970, 20,000 cottage septic tank systems have been inspected in the Rideau System, the Thousand Islands area, the Trent Canal System and a number of southern Ontario and Kenora area lakes to ensure they are in compliance with Ministry standards.

WASTE

A resource recovery program now being developed by Environment Ontario will, by 1990, serve 90 per cent of the people of Ontario, reclaiming a significant portion of garbage as material or energy and reducing landfill needs by 80 per cent.

The Ministry has, since 1971, dealt with 21,000 waste disposal sites, closing 500 sites and upgrading 65 per cent of the remainder to meet strict environmental standards.

The "Watts From Waste" program is under development to produce electrical energy from municipal waste used as a fuel additive.

PESTICIDES

Besides applying regulatory and classification controls on the sale, distribution and application of all pesticides and insecticides, Environment Ontario is conducting extensive public and professional education programs to ensure the proper and safe use of such chemicals.

A marked reduction in the traces of DDT found in the environment is also noticeable since it was severely restricted two years ago.

AIR MANAGEMENT

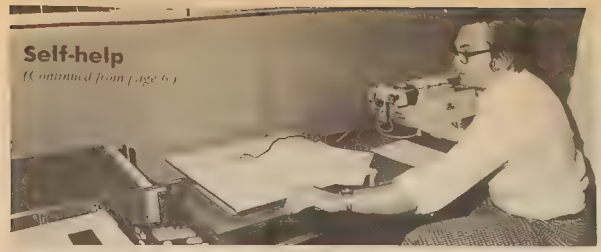
The Ministry operates 900 air quality monitoring instruments, measuring and providing data on 30 commonly known air contaminants. Special studies on other pollutants are also being carried out.

IMPROVEMENTS

Ontario industry has spent or committed $180 million to conform to Ministry air pollution control programs since 1972.

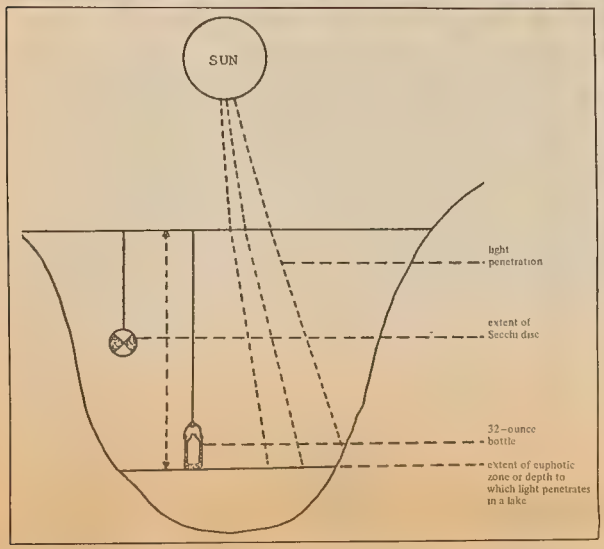
Sulphur dioxide levels in Metropolitan Toronto have been reduced by 60 per cent since 1968, by 46 per cent in Cornwall since 1971, by 55 per cent in Hamilton since 1969, and in Sudbury, by 33 per cent since 1970.

Particulate levels in Metropolitan Toronto have been reduced by 39 per cent, in Windsor by five per cent, in Cornwall by 42 per cent, in Thunder Bay by 16 per cent, and by 19 per cent in Sault Ste. Marie.



Self-help

(Continued from page 6)



Above left: computer reads chart produced by Spectrophotometer (above) and provides written data used to compile lake quality reports.

Think before you wash

PARTIAL LIST OF TESTED BRANDS – MAY, 1974*

The following brands were analysed for phosphorus content during 1973-74 and were found to be within the 5% P_2O_5 limit.

ABC
AJAX
ALL
AMAZE
AMWAY SA8
ARTIC POWER

APACHE

BILTRITE
BIO-AD
BLUEBIRD

BOLD

BONIMART
BREEZE
BIESOL BLUE H D

CHEER
CONTROL

CRESLOW
CLARENE

DIAPER PURE
DOMINO

DREFT
DUZ

FAB
FASSIL

JAVEX detergent

KERCELI

LAUD
LAUDERALI

MAPLE LEAF (powdered)

OMO
OXYDOI

PUNCH

R-GLO

SUNLIGHT
STEINBERGS LOW SUDS
SUPER DRIVE
SURF

THREE STAR

TIDE

VIP

ZERO

Samples of the following were found to contain less than 1% P_2O_5 or "no phosphate" at time of testing.

AHOY (pink liquid)
BESTLINE B-70
BLUE JET
BORAX
BRIGHT MONDAY

CANGUARD

CINDY (liquid)
CINDY (all purpose)
CONTROL ("phosphate-free)
CO-OP
CLARIX

DEBBIE (liquid)
DILIGENT

EASY-OFF
ENGRIME
EXPLORE

FANTASTIC (spray)
FLEECY
FORMA
GENTLE FELS (pink lotion)

HI P

INSTANT FELS
IVORY SNOW
IVORY LIQUID

LAUNDREX H.D. (low suds)
LAVADEIRA
LUX

MAPLE LEAF (soap)

PLAZA
PORTUGUESA
POWDER PLUS
PRAIRIE ROSE
PROVIGO BLUE

REVIVE
RIDDAX
RINTEX
SAIL (liquid)
SAIL (white)
SAIL (blue)
SIMPSONS SEARS ("no phosphate")
STEINBERGS H D BLUE
STEINBERGS H D WHITE
SWEETHEART (liquid)
SWEETHEART (lime liquid)

TERGEX
TOP VALU

VISPO

WOOLITE
WOOLITE (liquid)

ZERO (liquid)

* Released by Environment Canada

You asked us ...

I would like advice on soap types which can be used for washing in the lake and yet not "pollute" the lake.

In the 1940's scientists found that combining synthetic soap with a special type of phosphate yielded a washing product far more effective than earlier synthetic or organic soaps. This led to the development of phosphate-based detergents.

Unfortunately phosphates also act as fertilizers for weeds and algae and in turn this abnormal weed growth monopolizes the oxygen in water that is vital to animal and plant life.

In 1970 under the Canada Water Act the federal government restricted the selling of detergent containing more that 20 per cent phosphorus pentoxide by weight and it in 1973 further limited it to five per cent.

In most cottage areas the water is soft and quite appropriate for the use of soap. If your area has a hard water supply, try using soap with hot water and add some washing soda to soften the water. Also, rinse your clothes well.

There are many phosphate free detergents now available and federal government researchers feel that the phosphate substitutes will not cause adverse environmental effects.

If you are thinking of washing in the lake, stop and consider. Pure soap does not pollute but it does leave suds which are unsightly from an aesthetic point of view. The same holds true for washing your hair and some shampoos do contain detergents.

For Environment Canada's list of tested brands see below

I understand that the Ministry of Environment has status reports on various lakes. How can I get a copy of the report on my lake?

If a survey of your lake has been done, it can be obtained from the Limnology and Toxicity Section, Ministry of the Environment, P.O. Box 213, Rexdale, Ontario M9W 5L1

The era of the speedboat is upon us. Something should be done about the noise pollution it creates

Unfortunately, noise from motorboats is still in a very gray area. Anything dealing with navigable waters (water on which a boat can travel) is under the jurisdiction of the federal government. At present, any federal legislation relating to motorboats pertains strictly to the manufacture of engines.

If your cottage is in an organized area, check with the local municipality. Under the Ontario Municipal Act, they could possibly have noise bylaws

Does the provincial government offer aid to commercial lodge owners to improve their septic systems?

Tourist industry loans may be obtained from the Ontario Development Corporations to upgrade, winterize or expand tourist facilities. These loans can apply to the improvement of septic and pump out facilities.

Editor's note. One of the best environmental manuals for cottagers that I have seen is put out by Pollution Probe, University of Toronto, Toronto, Ontario M5S 1A1.

Private sewage systems:

What's in a name?

In the cottage areas, some of the basic details of life can take on new importance.

How many times a day are toilets flushed and sinks unplugged?

Where does the water go with its load of human and sink wastes?

In an urban community, residents don't worry about these things. A public sewage system and sewage treatment plant, operated and maintained either by the municipality or Environment Ontario remove these wastes and dispose of them after proper treatment and disinfection. In unsewered areas, however, sewage disposal becomes the responsibility of the individual.

For a septic tank system to function effectively, consideration also should be given to subsurface soil conditions, water tables, and seasonal conditions such as ponding.

Most of Ontario's 250,000 cottages have their own private waste disposal units–septic tanks, holding tanks, chemical toilets or privies, to name a few.

FAULTY SYSTEMS

The importance of these systems cannot be emphasized enough. When a system is faulty, sewage can flow directly into a watercourse or contaminate ground water.

In addition, if the chemical nutrients in sewage are allowed to enter lakes and streams in excessive amounts serious damage can result. Phosphates and nitrates from cottage discharges are fertilizing materials which increase weed growth, discolor water with algae and alter the entire community of aquatic life. The death and decay of this excess of plant life uses up dissolved oxygen in the water and some species of fish can no longer survive.

Other substances which can be added to water through sewage promote toxicity in the water, or produce objectionable tastes, odors, colors or foaming.

To reduce the possibility of these hazards, certain restrictions have been placed on cottage construction. Before a cottager can obtain a building permit, he must obtain a certificate of approval for his proposed sewage treatment system. A certificate is also required, if the cottager wishes to construct a system for an existing building. When altering or extending existing structures, the cottager must check with the local Ministry office or health unit to determine if these alterations will require a change in the present system.

There are various types of disposal systems available to cottagers. Choosing one particular type depends on a variety of factors such as the number of people who will be using the system, whether the residence will be open year round, the lot size, and soil conditions

To make it easier to decide on the unit which will meet specific needs they have been divided into six classifications. Those systems in classification one do not require a certificate of approval but they must still meet installation standards.

BASIC SYSTEMS

Class one systems are used only for the disposal of human body wastes. They include earth or pit privies, vault or removeable pail privies and incinerating, composting and chemical toilets.

Class one systems are permitted if the lot conditions will not allow the installation of a septic tank and tile bed, as long as provision is made to dispose of waste water (sink wastes) in a separate system and the premises are not served by a pressure water system.

The use of holding tanks as sewage disposal systems for new lots is not permitted. They may be used as an interim measure however, if sewage construction is planned in the near future or on existing undeveloped lots where septic tank systems are not economically feasible

A *class six* system consists of a proprietary aerobic sewage treatment plant. An example of this is the Aquarobic system manufactured by Waltec Industries Limited, Wallaceburg, Ontario which has been under test for the past year at the Ontario Research Foundation. The system consists of an aeration tank and a settling chamber where the raw sewage is treated aerobically and the solids are allowed to settle, followed by a sand filter.

Because of the cost involved, an Aquarobic system would likely be used to solve pollution problems where lots are inadequate in size, shape or topography to permit normal septic tank leaching bed installations or where the installations of a septic tank would require large amounts of fill making the expense of an Aquarobic System competitive.

Choosing the right system is enough to make your head swim. Picture taken courtesy of Sanitation Equipment, Downsview, Ontario.

Class two systems or seepage pits are designed for the disposal of domestic water. The systems are permitted where human body wastes are disposed of in a class one system and the premises are without a pressure water supply.

Class three systems are cesspools. These systems are designed to accept waste from a class one system or to accept effluent which has passed through a leaching bed which was in use prior to the enactment of the sewage systems section of the Environmental Protection Act.

A *class four* system is a septic tank leaching bed system. Normally it is composed of the house sewer, the septic tank and a leaching bed. It may vary in the number, size and layout of the component parts depending on the type and volume of sewage treated, the permeability of the soil and the grades and layout of the system.

A *class five* system consists of a holding tank for the storage or retention of sewage at the site where it is produced prior to its collection by a sewage hauler.

INSPECTIONS

To ensure that a cottager has chosen the right system for his lot, a provincial government inspector examines the area after he receives the application for a certificate of approval. If the proposal meets the requirements of the Environmental Protection Act, the regulation and the guidelines, the certificate will be issued.

If the cottager proposes to install a class four, five or six system, the inspector will again examine the lot after the system is installed but before the trenches or other parts are covered or backfilled. If everything is in operating order he will issue a use permit.

It is an offence to construct a system without a certificate of approval or in the case of systems four, five or six to operate it without a Use Permit.

OLD SYSTEMS

A cottager who installed a system before these regulations came into effect does not have to worry about switching over unless he is causing a problem. If pollution along a lakeshore can be attributed to a particular system, the owner must correct the problem and the new regulation would then apply.

During the summer months, many cottages around Ontario are visited by a specially trained group of students who are looking for faulty systems (see page 15). An inspector from the Ministry of the Environment works with the cottager, if an abatement program is necessary. Many cottage associations are also going into self-help programs which help them to test the quality of their lakes. In addition, the local health units and Ministry of the Environment staff are available to check out any suspicious systems.

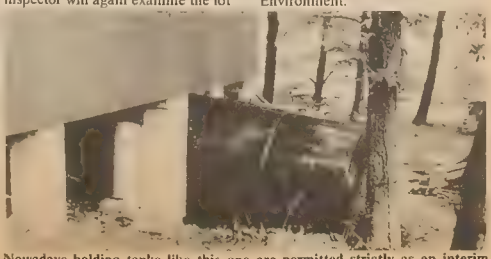
NEW DISPOSAL SYSTEMS

There are numerous sewage disposal systems on the market to-day, some advertising Ministry of the Environment acceptance. When a company comes up with a new concept for a system it may take it to the Ministry for approval. The system is thoroughly checked out to see whether it meets the conditions of its classification.

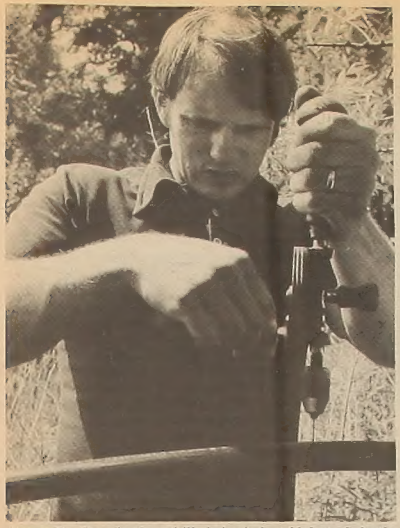
The Ministry is interested in whether the use of a new unit will result in environmental degradation.

If the unit meets the Ministry standards, a letter of acceptance is sent to the company, the health units and the Environment Ontario field offices. This acceptance does not mean that the Ministry considers it the best system in the field, but only that it meets the classification conditions and if installed and used correctly will not pollute.

If a cottager is interested in purchasing a particular disposal unit, the local health unit could tell him whether the system has been accepted by the Ministry of the Environment.



Nowadays holding tanks like this one are permitted strictly as an interim measure.



Above: Dr. Tom Brydges drills holes in last 20 feet of plastic pipe before placing it in lake.

Left: Compressor on shore forces air through pipe causing cold water to rise and take on oxygen.

Good boating relies on co-operation

By DENNIS NAGATA
Summer Editorial Assistant

The province that brought you a place to stand, also built you a place to dock: Ontario Place.

The marina facilities at the province's people showplace can handle up to 300 boats at any given time. More than 4000 used those facilities last season, coming from as far as Texas and Florida. But long before out-of-province boaters berth in the shadow of Cinesphere they are asked to comply with Ontario boating regulations that call for total sewage retention. The man who does the asking is Mr. F. H. Hooper, Ontario Place's manager of marine activities.

"Our staff clears the debris and dead fish from around the site. We do our best to keep the waters clean, we expect the same from the boaters.

"I haven't heard any criticism of our provincial boating regulation", said Mr. Hooper. "In fact, I suspect many come to Ontario because of its clean waters."

Not only are more boaters coming to this province, more Ontario residents are taking to the water. Mr. Hooper said marinas are having a difficult time servicing the more than 80,000 registered boats in the province. The answer is more marinas, but the cost is prohibitive—over $2000 per boat space. As a marina designer, Mr. Hooper encourages the development of comprehensive service marinas, with pump-out and full maintenance facilities.

More boats in the water means more noise, for shore-line cottagers as well as boaters. Sailors are more sensitive to noise pollution than are powerboat operators, said Mr. Hooper. The sound of wind in the sails is the only one they want to hear.

Walt Painting is Environment Ontario's Central Region co-ordinator of boat inspection. With the densely-packed marina facilities in the Toronto harbor area, Mr. Painting can see many boats in a short time. They are so dense in some areas that he is considering acquiring a rubber dingy to reach boats inaccessible to his 22 foot, 165 h.p. inspection craft. He and his colleagues inspected more than 2000 boats last season.

"A boat coming into Ontario waters has two options," said Mr. Painting. He can seal his toilet so it can't be pumped overboard and use shoreline facilities, or he can use a portable, self-contained unit."

Non-compliance can lead to a maximum $1000 fine, but in Mr. Painting's experience it's a rare occurrence.

"Our boating regulation relies on co-operation, not enforcement", said Mr. Painting.

Walt Painting talks to boat owner before inspecting disposal facilities on board.

Ontario stands firm on water standards

Reprinted from the Windsor Star—April 1975

Ontario's environment ministry deserves praise for its firm stand against a backdown by the U.S. government on clean water standards.

The U.S. Environmental Protection Agency early this year relaxed its rule requiring pleasure boats with toilet facilities to carry holding tanks from which sewage is pumped at shore disposal stations. Instead, the EPA now allows macerators, in which the sewage is chopped up and partially disinfected with chemicals before being dumped into the water.

The EPA ruling affects all U.S. states, most of which have their own legislation requiring holding tanks. But it does not affect Ontario, which has holding tank legislation worked out to complement Michigan law.

The Ontario environment ministry has now announced that it intends to stick with its own legislation, despite the fact that the province shares boundary waters with several U.S. states whose boaters make free use of Canadian waters. The decision may mean prosecution of U.S. boaters shielded in American waters by the EPA's relaxed standards.

The difficulties of enforcing the Ontario law are obvious. But the province has no choice. It has its own law, which is wise and necessary. That law has been working well in co-operation with the Michigan law now set aside by the EPA. Together, the two have been bringing about a worthwhile improvement in cleaning up water in the Great Lakes. There is no reason to relax the Ontario law, and if offenders can be caught and prosecuted, so be it.

It is not a hopeless case, however. Michigan and many other states which have holding tank laws are applying pressure on Washington for a change in the EPA ruling. Ontario might well take its case to Washington through Ottawa. And a few prosecutions, showing that American boaters are polluting Canadian waters because the EPA relaxed its standards, would spotlight the matter for the public in both countries.

Getting to the Heart of the Lake's problem

Just about every person in the Toronto area has spent at least a few hours of his life at Heart Lake near Brampton. It is one of the most popular swimming spots in the area and on a hot weekend thousands pass through its gates.

Over the past few years, attendance has been falling off and the Metropolitan Toronto Region Conservation Authority attributes it partially to the murky water. It has become so turpid that if a swimmer went under he would be exceedingly hard to find. Blue-green algae has also become so prolific that a child standing waist deep in the water can't see his feet.

To improve the clarity, the Ministry of the Environment, in conjunction with the Ministry of Natural Resources, is trying to change the chemical environment of the lake and to encourage forms of algae more desirable than the blue-green variety.

They are pumping compressed air into the deepest spot in the lake (42 feet) to set up an artificial circulation. The method is called destratification.

A plastic pipe line, perforated with pin holes along the last 20 feet, is run from an air compressor on shore into the water. Air from the holes bubbles to the surface, causing the cold bottom water to rise and take on oxygen. Normally a lake turns over in the spring and fall, with changes in temperature, but this technique creates a continuous turnover.

At first the plankton population will increase, but the researchers expect in a year or two the water will be much clearer and the quality of the fish will improve.

A great advantage is the cheapness of the technique. It costs less than $2,000 to buy aeration equipment and only a few dollars a year to maintain. They might not even have to continue the artificial destratification— once the problem is corrected the lake may maintain its health.

Cottage associations

Muskoka – bedroom and sandbox

By DENNIS NAGATA
Summer Editorial Assistant

Forget tennis elbow—this lady worries about telephone elbow. More than 5000 people have her phone number.

Lorraine Wood of Port Carling (15 miles northwest of Gravenhurst) is the secretary of one of the largest cottage associations in the province. The Muskoka Lakes Association was founded nearly a century ago to protect the property, environment, and the safety of Muskoka residents. With calls coming in at all hours of the day and night, Mrs. Wood is a full-time employee in the truest sense of the word.

"People use me as a resource person," she said, "as a kind of information directory." Often Mrs. Wood directs cottager queries to one of the association's 11 standing committees which include environmental protection; fish and game; and sailing.

This summer, the recreational safety committee chaired by R. Barry Graham of Minett, near Port Carling, prepared recreational boating guidelines for the association—more than a year of study.

Mr. Graham is awaiting reaction from local government and the Ministry of the Environment to his committee's boating guidelines. At the least, he said, they will help to generate discussion around an important issue – recreational boating safety.

Mr. Graham was critical of the existing legislative control over power boat operation. He said the criminal code provides for all boating infractions under the charge of unsafe operation which leaves a permanent record upon conviction. He said the result of prosecution is too severe, leading to reluctance by local officials to seek prosecution.

The three generations that the Graham family has lived on Lake Rosseau have seen an increasing use of the Muskokas as, what Mrs. Wood calls, "the bedroom and sandbox of Ontario." This has meant bigger and faster boats on the Muskoka lakes, said Mr. Graham, and more of them—contributing factors to an increasing noise problem. The safety committee's guidelines call for controls on the speed and proximity to the shoreline of power boats to minimize the noise effects.

Currently, marine engines must meet federal operating standards which include noise units for new engines.

Sauble's chamber initiates preventative action at Beach

Sauble Beach, at the foot of the Bruce Peninsula on Lake Huron, is becoming increasingly popular among summertime bathers. This could lead to a potential pollution problem but the chamber of commerce isn't waiting for that to happen.

The Chamber of Commerce of Sauble Beach represents about 100 businessmen in a one-quarter mile section of the seven mile beach. Acknowledging the fact that their customers are the major pollution contributors in the resort town, the chamber maintains a full-time committee to preserve the beauty of the beach. Planting flowers and controlling litter are its major activities.

The chamber's responsibility extends beyond man-made pollution: last winter they cleaned up after a bad winter storm that left the beach littered with debris. Early in June, the chamber secured radio time to ask local cottagers to assist in a fish clean-up along the beach. About a dozen chamber of commerce members toiled all day to cart four truckloads of dead fish to a nearby dump.

By encouraging Amabel, the local township to be a sponsor, the chamber helped the Sauble beach area, get a $6000 federal grant under the Opportunities for Youth program. The students hired for the project will provide tourism information, first aid and litter control along the beach.

Students will also be employed by the Ministry of the Environment for a voluntary cottage survey of sewage installations this summer. The Ministry will also conduct a nine week study of the offshore water quality and the storm drain system along the beach.

The chamber also has before council a proposal to control the use of neon signs along Sauble Beach's main strip. Chamber president, Ray Kirkland, said without such policing, the route would become a "neon jungle."

Municipalities fronting on the lower Great Lakes and connecting waters can receive financial assistance to develop waterfront recreational facilities from the Ministry of Natural Resources.

The new Great Lakes access program will make up to $500,000 available this year. The program will extend over several years and consideration will be given to including communities on inland waters.

In many cases, the onshore developments undertaken by the municipality will be associated with off-shore breakwater on harbor improvements carried out by the federal government under its small craft harbors program.

Collingwood's cottagers commission planning study

Land-use planning is often the brainchild of a cottage association. In this case, the child became the parent.

Cottage owners at the foot of Collingwood's Blue Mountain ski area last year commissioned a study to develop plans for the preservation of the area's natural beauty. That study became the germ of a permanent association of 75 cottagers in the Craigleith Ski Club Village.

"We're a community organization, not a political group," said association president Ron Patchell of Burlington, Ontario. "We're not interested in raising hell with council as much as we are interested in providing proven methods for preserving or enhancing the landscape."

Those methods are outlined in the development study prepared by N. T. Switzer, then a student of landscape architecture at the University of Guelph. That study calls for extensive planting of trees and shrubs indigenous to the area; the conversion of overhead hydro lines to underground installation; the limited use of outdoor lighting and lot fencing; and other proposals.

Not only have the proposals been approved in principle by council of Collingwood Township, but a local developer modified his subdivision plans to incorporate some of the association's proposals, including provision for larger lots and the use of underground wiring.

Association member, Ted Squires, said residential development at the foot of Blue Mountain, in general, exhibits poor planning with small lots jammed together. – "A visual junk shop," he called it.

"Craigleith ski club village will learn from the past mistakes," he said.

Associations concerned with lagoons

The story of 33 efficiently-run sewage lagoons in the Muskoka lakes region began two years ago through the concern of two citizens groups.

The Muskoka Ratepayers Association and the Muskoka Lakes Association, the largest cottage association in the province, retained a Toronto firm of consulting engineers to study lagoon operation in the area. The firm reported that, if correctly designed and efficiently operated, the lagoon (a pond to temporarily hold sewage) is an efficient means of handling sewage from seasonal commercial operations. However, the engineering study uncovered instances of lagoon mismangement, pointing to a need for closer supervision supporting the view of the local Ministry office.

Early last year the engineering report came before a meeting of the two associations with Ontario Environment Minister, William G. Newman, in attendance. Mr. Newman announced later that an officer would be placed in the region to devote full time attention to the inspection of existing lagoons and to advise on construction of others.

With the help of that officer last year, all 33 area sewage lagoons are operating efficiently, according to the most recent Environment Ontario reports.

Outboards make waves in Kingston

Outboard motors are making waves with the cottagers on Loughborough Lake.

A representative from the association of 400 Loughborough cottagers along the 21-mile-long lake just north of Kingston raised two possible areas of pollution involving outboard motors in a recent Toronto meeting.

Noise from motorboats is a problem concerning many cottagers.

The association's secretary, Norm Freeman, told the 12th annual meeting of the Federation of Ontario Cottagers Association (representing more than 250,000 cottagers) that oil and underwater exhausts from an increasing number of outboard engines have contributed to a steadily declining fish population.

In addition, he raised the question of underwater noise pollution to the 125 delegates. Association members Rick York and his wife Nellie, Mr. Freeman said, while skin diving in the lake have observed that a high-speed outboard approaches with an increasing whine scattering fish from around shoals and weed beds.

Manufacturers of outboard motors must comply with current federal requirements.

The Loughborough cottage association's concern for water quality dates back almost 10 years when it began testing lake water on a regular basis. Working with the Ministry of the Environment last summer, the association joined a self-help program designed to trace factors which relate to the growth of microscopic plants and water weeds, and to the aging of the lake.

Cottage detectives

Specially trained university students will visit over 4,000 cottages around Ontario this summer. Working under Environment Ontario's cottage pollution program, their job is to detect faulty sewage disposal services or practices in the cottage area which may be polluting our lakes.

If the data and samples collected by the students indicate that the facilities are inadequate, a Ministry abatement official will check the findings. If a problem does exist, he will contact the owner to discuss an abatement program.

Top right: Students visit every cottage on pre-selected lakes. Top left: Student collects information from cottager on the private waste disposal method used, number of occupants at cottage, details of plumbing installation, location, size and age of septic tank, cesspool or pit privy and topography of the lot. Middle: Members of the cottage pollution control group explain to cottager the need for a soil sample. Bottom left: Samples of lake water near the cottage are taken and sent to the nearest laboratory for analysis. Right: Co-operation between cottagers and Ministry staff is important to ensure adequate protection of our lakes.

Typical public beach on a hot summer day.

Public beaches are not all fun and games

Anyone who has ever attempted to get to a public beach on a hot muggy day knows how popular these areas have become.

Unfortunately, the leaning towards outdoor life has lead to an overcrowding of many public bathing beaches. Not only does this create safety and aesthetic problems but a recent study carried out by the Ontario Ministries of Natural Resources and the Environment has established a relationship – the more bathers in the water, the higher the level of bacteria.

While some bacteria such as faecal coliform are not harmful, their existence usually indicates the presence of other organisms which can cause enteric diseases. Some groups of *pseudomonas* and *staphylococcus* cause eye, ear, nose and throat infections.

The two Ministries are now working towards establishing a beach capacity criteria to minimize the possibility of poor water quality because of increased recreational use and to provide guidelines for beach management.

Last year and again this year two provincial parks are the study sites. The parks, chosen because they were easily accessible and close enough to one another that only one mobile laboratory is required, are Earl Rowe Park in Alliston and Bass Lake Provincial Park near Orillia.

In 1974, during the peak tourist season, May 10-October 14, 239,903 people visited Earl Rowe Park and 172,123 people visited Bass Lake.

Last summer the Ministry of the Environment's mobile lab was parked at Bass Lake. In addition to the monitoring done during the week, sampling was also carried out from Friday to Monday on two separate weekends.

Tests of the samples consisted of counts of total coliform and faecal coliform organisms and faecal streptococci. Analyses were also done for bacterial groups such as *pseudomonas aerugenosa*.

According to the data collected neither park has a major problem but the survey did indicate the relationship between bathers and bacteria. It hasn't yet been determined whether the increased bacteria is being added by the swimmers themselves or if the bacteria is present in the lake sediment disturbed by the bathers.

The study is a rather complex one because of the range of factors involved. For example, some 24 to 72 hours after a rainfall, bacteria counts rise. This might be because of soil runoff or it may be because of the people going back into the water.

Temperature is another important factor. Head counts can also be misleading. Is the actual number in swimming at a certain time a good indication or should the number of people on the beach be included also?

At present, written guidelines, prepared by the Ministry of Health and Environment Ontario for water quality at bathing beaches are available to medical officers of health. These guidelines serve as a basis for judging a beach's water quality and for taking action if a hazardous situation is indicated.

If a survey reveals that the water is hazardous to health, notices are displayed to effect that the water quality is hazardous and that bathers enter at their own risk; corrective action is taken to eliminate the source of the hazard; and surveillance of the water quality is continued until the corrective action is completed and the water quality can be declared safe for bathing.

This of course is an after the fact measure but after this summer's two surveys are completed the methodologies should be refined enough to predict problems and to permit preventative action.

Ministry of the Environment
Ontario

Hon. William G. Newman
Minister

Everett Biggs
Deputy Minister

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Little can be done if cottage built on floodplain area

By SUSAN MERKLEY
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Mississippi Valley Conservation Authority

One of the problems the Mississippi Valley Conservation Authority has to deal with each spring is the flooding of cottages on Mississippi Lake.

The lake is intensely developed and many of the cottages were built more than thirty years ago. As a consequence, many of these cottages are on the floodplain and are surrounded by water each spring. Some have been winterized and are now permanent residences which compounds the problem.

Many cottagers fail to realize that because they are on the floodplain, there is very little that the conservation authority can do to rectify the situation. They sometimes expect the authority to pull more logs out of the dam at the outlet of the lake when most of the logs are already out. Often, there is the danger of flooding downstream settlements if more logs are removed.

The conservation authority has had half of the lake floodplain mapped and will complete the mapping in the near future. Future buildings must be behind the floodline. Some cottagers applying to construct on the shoreland of the lake see this requirement as a restrictive measure but it is actually for their own protection and well-being.

Another problem associated with cottages is the pollution caused by outhouses and sewage disposal systems which are on the floodplain and inundated with water each spring. The nutrients are flushed out into the lake adding to the enrichment problem.

The conservation authority has spent considerable time and money on floodplain mapping to protect cottagers from flooding and to attempt to alleviate some of the pollution problems. It is an important aspect of conservation work and should be recognized by the cottagers and the general public as a protective measure rather than a restrictive one.

This trailer park has been built on a floodplain.

Thames

(Continued from page 1.)

down-stream water quality.

"It is our intention to correct the serious problem created by soil erosion and top-soil loss both in the lower and upper basin areas," Mr. Newman emphasized.

The report calls for implementation of a corrective program from Chatham upstream to Delaware similar to the $7 million program now being carried out in the lower watershed to minimize erosion.

The Thames River Basin is the second largest watershed in southwestern Ontario draining an area of 2,250 square miles. The river flows approximately 125 miles from its source to Lake St. Clair. Southwestern Ontario's largest watershed is the Grand River Basin which drains 2,627 square miles.

"We are all agreed that a great deal must be done within the basin before we can be satisfied with the quality of the water, the protection of irreplaceable agricultural land and the provision of additional recreational facilities. To achieve our objectives we must have the support and co-operation of all municipalities, agencies and groups," the Minister of Environment said.

He pointed out that the formation of a joint committee to resolve communication and co-ordination programs would permit all concerned groups and individuals to participate in the Thames River Basin improvement programs.